

**ELECTRONIC DEVICE AND ELECTRONIC DEVICE OPERATING CONTROL
METHOD**

Examiner: Scully S.N.: 10/539,778 Art Unit: 1795 April 15, 2009

DETAILED ACTION

1. The Amendment filed December 30, 2008 has been entered. Claims 1, 3, 5-6 and 8-17 are pending in the application. Claims 9-17 are currently withdrawn. Claim 1 is amended to incorporate the subject matter of original claims 2, 4 and 7. Claims 2, 4 and 7 have been canceled. Accordingly, claims 1, 3, 5-6 and 8 are currently pending.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claim rejections of claims 2, 4 and 7 under 35 USC 103(a) are withdrawn in because the claims have been canceled.
4. Claims 1, 3, 5 and 8 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Meltser et al. (JP2000-067896, cited in IDS) in view of Watanabe (US2004/0067398) and Boehm et al. (US6,461,751).

Applicant appears to be invoking 35 U.S.C. 112, sixth paragraph, by using means-plus-function language. The 3-prong analysis of each means-plus-function claim limitation is met wherein a) "means for" language is used, b) the "means for" language is modified by functional

language, and c) the phrase "means for" is not modified by sufficient structure, material, or acts for achieving the specified function.

With respect to claim 1 and 8, Meltser et al. disclose a fuel cell system comprising opt-isolators (14-20) (voltage detection means) for monitoring the voltage of the fuel cell. Further, a warning is issued when an abnormal condition occurs. When all fuel cells are operating normally, light emitters (22) emit light and thus display the voltage is satisfactorily high. See abstract.

Meltser et al. are silent with respect to a residual fuel amount detection means.

Watanabe discloses a hydrogen delivery system configured such that it has the functions of storing, displaying, and transmitting various kinds of information including the residual amount of a fuel gas. See paragraph 0018. It would have been obvious to one of ordinary skill in the art at the time of the invention to further monitor the residual fuel amount of Meltser et al. and display it on a display screen because Watanabe teaches detecting the flow-in amount and flow-out amount of the storage to thus detect the total amount of stored hydrogen and displaying the amount so that the electronic device user can monitor the remaining energy output of the device. Meltser et al. and Watanabe et al. are silent with respect to an oxidizing agent concentration detection means.

Boehm et al. disclose a method and apparatus for operating a fuel cell wherein the oxidizing agent concentration of the oxidant stream is monitored so as to reduce parasitic power consumption, further comprising a warning signal to indicate that the oxidizing agent concentration is low. See Figure 4; Column 14, Line 36-Column 15, Line 6. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the fuel cell

system of Meltser et al. with an oxidizing agent concentration monitoring system because Boehm et al. teach that it reduces parasitic power consumption.

Meltser et al. and Boehm et al. disclose judging the voltage and the oxidizing agent concentration of the fuel cell, respectively, and warning when either is below a predetermined value. A sequence is not supplied for the events. However, selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results; *In re Gibson*, 39 F.2d 975, 5 USPQ 230 (CCPA 1930).

Further, an explicit showing of stopping judgment means is not taught. However, Boehm et al. disclose a common methodology of control where a first step occurs where a first monitoring function occurs (164) and a yes or no response is issued. See, for example, Figures 4-5. In the current case, it would have been obvious to one of ordinary skill in the art at the time of the invention to conclude execution of a judgment means if the initial step showed that the fuel cell was operating with the desirable voltage because that would indicate the system's inputs and outputs were at their desired values. Similarly, if the first step showed something was wrong, the analysis would obviously continue on to advantageously determine the problem, for example through the methods of Watanabe et al. and Boehm et al.

With respect to claim 2, Meltser et al. teach when a voltage of the fuel cell is lowered below a start voltage of the light emitter, the related light emitter disappears, and the light emitters 22 emit light when operation is normal. See abstract.

With respect to claim 3, Watanabe discloses using a display to show the residual fuel left, which directly corresponds to the amount of time left on said fuel cell. It would have been obvious to one of ordinary skill in the art to display the monitored results instead of using an

on/off light as taught by Watanabe because it would provide for more information on the system to be presented to the operator.

With respect to claim 5, Watanabe discloses displaying the residual fuel left. It would have been obvious to one of ordinary skill in the art to further display insufficient oxidizing agent concentration when the problem arises so the operator is notified.

5. Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meltser et al. (JP2000-067896, cited in IDS), Watanabe (US2004/0067398) and Boehm et al. (US6,461,751) as applied to claims 1-5 above, and further in view of Miyamoto et al. (US6,002,888).

With respect to claim 6, Meltser et al. disclose displaying the remaining battery power of a camera on a display with a battery image 50 indicating the percentage of power remaining. See Figure 38. The image 50 is made to flash when the warning display for low battery charge is raised. See Column 28, Lines 6-10; Figure 38. It would have been obvious to one of ordinary skill in the art at the time of the invention to cause the display to flash when the voltage is low so that the operator is more likely to notice the blinking of the indicators.

With respect to claim 8, it would have been obvious to one of ordinary skill in the art to cause the time left on the fuel cell indicator to flash when the residual fuel amount is low so the operator is more likely to notice.

Response to Arguments

6. Applicant's arguments filed December 30, 2008 have been fully considered but they are not persuasive. Applicant argues:

a) the combined references do not disclose ceasing judging if the display means displays that the state of the fuel cell is normal or ceasing judging if the residual fuel amount in the fuel cell is insufficient.

The Examiner agrees an explicit showing of stopping judgment means is not taught. However, Boehm et al. disclose a common methodology of control where a first step occurs where a first monitoring function occurs (164, for example) and a yes or no response is issued. See, for example, Figures 4-5. In the current case, it would have been obvious to one of ordinary skill in the art at the time of the invention to conclude execution of a judgment means if the initial step showed that the fuel cell was operating with the desirable voltage because that would indicate the system's inputs and outputs were at their desired values. Similarly, if the first step showed something was wrong, the analysis would obviously continue on to advantageously determine the problem, for example through the methods of Watanabe et al. and Boehm et al.. It is therefore the position of the Examiner that the judgment means ceasing from judging is an obvious control choice to ensure optimal operation of the system.

b) the combined references do not disclose the sequence of judgment.

While it is true that the sequence is not disclosed, selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results; *In re Gibson*, 39 F.2d 975, 5 USPQ 230 (CCPA 1930).

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact/Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Scully whose telephone number is (571)270-5267. The examiner can normally be reached on Monday to Friday 7:30am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571)272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/S. S./
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 1795